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## THE FUNKIAS OR DAY-LILIES

BY GEORGE V. NASH

Many years ago, past the middle of the eighteenth century, that indefatigable explorer and botanist, Thunberg, visited Japan. During his travels in that then almost unknown country, he found a perennial plant which was of frequent occurrence, both wild and under cultivation. In those days of broadly drawn generic lines, Thunberg without hesitation referred his plant to the Linnaean genus *Aletris*, under the specific name of *japonica*. Some years later, in 1784, he transferred this to the genus *Hemerocallis*, perhaps a nearer approach to its true relationship as understood today; but it was not until 1807 that the first intimation was made that the group to which this plant belonged might be the basis of a new genus, and the name of *Saussurea* was very indefinitely proposed for it by Salisbury. The form in which this proposition was made could not possibly be considered as publication under the rules of nomenclature of the present day. In any event, it is not available, as the name *Saussuria* had been previously employed by Moench for an entirely different group of plants. In 1812 Trattinick proposed the name of *Hosta*, ignoring the fact that Jacquin fifteen years earlier had used it for a genus of the Verbenaceae. These earlier names being disposed of the way is clear for the adoption of the *Niobe* of Salisbury, published in the same year as *Hosta*, and about which the question of priority might have been raised, had not Trattinick's name proved a homonym. Salisbury adequately published his name, it being based on *Hemerocallis japonica* Ker. In spite of this, however, the name of *Funkia*, under which these plants are generally known and which was not published by Sprengel until 1817, is adopted in the Index Kewensis. This arbitrary usage is perhaps responsible for the wide

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acceptance of this name and the continuation of the error. That this name must be abandoned and that of *Niobe* reinstated, is well supported by the above facts.

The genus divides itself into two rather well-marked groups which were considered genera by Salisbury, under the names of *Niobe* and *Bryocles*. The former was applied to the plant known here as *Niobe plantaginea*, in which the flowers are white and have the filaments adnate to the tube for part of their length, while the name of *Bryocles* was given to what is here called *Niobe coerulea*, a group including at the present time several other species, in which the flowers are smaller, colored, and have the filaments free. It is said that in *Niobe plantaginea* there is present a small bracteole at the base of the pedicel, but I find this frequently wanting, so attach little value to it as a generic character. In view of the above, I find it better to adopt the generally accepted view of the present day, and consider the two groups as parts of one genus.

The genus may be briefly characterized as follows:

*Niobe* Salisbury, Trans. Hort. Soc. 1: 335. 1812

*Bryocles* Salisbury, l. c.

*Hosta* Tratt. Arch. Gew. 1: 55. 1812. Not Jacq. 1797.

*Funkia* Spreng. Anl. Ed. 2, 2<sup>1</sup>: 246. 1817.

*Libertia* Dum. Comm. 9. 1822.

Tufted perennial herbs, forming large masses, with petioled basal leaves, and a racemose inflorescence borne on a naked or leafy stem. Perianth varying from white to deep lavender, tubular-trumpet-form, funnel-form, or campanulate-funnel-form: segments six, shorter or longer than the tube. Stamens six, declinate, from equalling to a little shorter than the perianth, the filaments filiform and free or nearly so, or adnate to the tube for a considerable part of their length: anthers oblong, versatile, introrse. Ovary sessile, oblong, 3-celled. Style filiform, a little thickened at the stigma. Ovules numerous. Capsule narrowly oblong or almost linear, loculicidally 3-valved. Seeds compressed, angled, or almost flat.

Species seven or eight, perhaps more, natives of Japan, China, and eastern Siberia.

The following key will help identify the six species in cultivation:

Perianth white, 8–10 cm. long, tubular-trumpet-form; stamens adnate to the tube for a considerable portion of their length. 1. *N. plantaginea*.

Perianth colored, 3–6 cm. long, stamens free.

Perianth funnel-form, the tube gradually passing into the limb, from white flushed with lavender to pale lavender.

Flowering stem with leaves or with leaf-like bracts, these gradually passing into the bracts of the inflorescence; leaf-blades green.

Leaf-blades lanceolate to ovate-lanceolate, usually equally narrowed at both ends, the nerves on each side of the midrib 3–5; perianth usually less than 5 cm. long. 2. *N. japonica*.

Leaf-blades broadly ovate, the nerves on each side of the midrib 6–10; perianth usually 5 cm. long or more. 3. *N. undulata*.

Flowering stem naked, or sometimes with a single bract at the middle; leaf-blades glaucous.

Scape not or but little exceeding the leaves; petioles usually much exceeding the blades. 4. *N. Sieboldiana*.

Scape much exceeding the leaves; petioles usually not exceeding the blades. 5. *N. Fortunei*.

Perianth campanulate-funnel-form, the tube abruptly passing into the limb, blue. 6. *N. coerulea*.

✓ 1. **Niobe plantaginea** (Lam.). White Day-lily. Plantain Lily

*Hemerocallis plantaginea* Lam. *Niobe cordifolia* Salisb. *Funkia subcordata* Spreng. *Funkia alba* Sweet. *Funkia grandiflora* Sieb. & Zucc.

A showy perennial, with large plantain-like leaves, and racemes of white odorous flowers. Leaves numerous, pale green; blades 15–23 cm. long, 8–13 cm. wide, broadly ovate, cordate at the base, acute at the apex, with 6–8 curved nerves on each side of the midrib; petiole usually exceeding the blade in length: scape 4–6 dm. tall, with 1 or 2 lanceolate bracts near the middle: inflorescence racemose, 1–2 dm. long: flowers up to about 12, each in the axil of an ovate bract 3–4 cm. long, on pedicels 1–2 cm. long: perianth about 1 dm. long, white, its lobes ovate or lanceolate, 3–4 cm. long, but little spreading; stamens shorter than the perianth: capsule about 2 cm. long.

A native of Japan and China. Lamarck, who described this plant under the name of *Hemerocallis plantaginea* in 1789, thought that it had been growing for a few years in the garden of the king, to which it had been sent by M. de Guines from China. This is the first reference found to its cultivation outside of its native country, so its introduction to gardens may be taken as occurring somewhere near that date. It is known in Japan as

“tamano kandsaki.” The variety *grandiflora* (*Funkia grandiflora* Sieb. & Zucc.) appears to differ only in the somewhat larger flowers, and in having the bracts of the raceme larger and more leaf-like.

From an inspection of the list of synonymy cited above, it will be seen that this plant has had many names. It has frequently been considered the *Hemerocallis japonica* of Thunberg's Flora Japonica, on account of the flowers of that plant being described as white. Thunberg, however, states that in his plant the filaments are attached to the base of the corolla at the edge of the ovary, a condition not existing in the plant here under consideration, in which these parts are adnate to the perianth tube for a considerable portion of its length. Thunberg may have had a pale-flowered form of the plant considered in this paper as *N. japonica*. The name under which this plant is commonly known in gardens in this country and in those of Europe is *Funkia subcordata*, a name descriptive of the shape of the leaves, but not more so than is that of *plantaginea*, here adopted, which refers to the resemblance of these leaves to those of the common plantain of Europe, *Plantago major*, a resemblance striking indeed.

2. **Niobe japonica** (Thunb.). Japanese or Lance-leaved Day-lily  
*Aletris japonica* Thunb. *Funkia lancifolia* Spreng.

A showy perennial forming large dense masses, with elliptic to nearly ovate leaf-blades which are narrowed at the base, and racemes of lavender flowers. Leaves numerous, green: blades 10–15 cm. long, sometimes up to 6 cm. wide, lanceolate or elliptic to ovate-lanceolate, usually equally narrowed at both ends, rarely more broadly so at the base, with 3–5, rarely more, curved nerves on each side of the midrib: scape 4–6 dm. tall, overtopping the leaves, the scattered and distant leaves gradually passing into the bracts of the inflorescence: inflorescence racemose: flowers sometimes up to 20, finally nodding, on pedicels 4–6 mm. long: perianth pale lavender, 3–5 cm. long, the slender tube, less than one half the length of the perianth, narrowed into a broad limb, the segments 1.5–2 cm. long and 8–10 mm. wide, acute: capsule 2.5–3 cm. long, pendulous and appressed to the scape.

A native of Japan. There is a variegated form in cultivation

known as variety *albo-marginata* (*Funkia albomarginata* Hook.), which has the leaves margined with a narrow band of white. There is another form which is quite distinct, the variety *tardiflora*, in which the pedicels are longer, the lower ones 10–12 mm. long. It also flowers a little later, so that while the one is in ripe fruit, this variety is still in flower. It is also more resistant to frost.

The synonymy of this plant has perhaps been more tangled than in any other member of the genus, and it was in part the fault of Thunberg himself. In his *Flora Japonica*, published in 1784, he described a *Hemerocallis japonica*. Previous to this, in 1780, he had published an *Aletris japonica*, but in the *Flora Japonica* he made no reference to this. As in the later publication he quotes verbatim in part the description given of his *Aletris*, it is quite easy to connect the two. Subsequent to the publication of *Hemerocallis japonica* Thunb., Kaempfer's *Icones Selectae Plantarum* appeared, published in 1791, and at plate 11 of this work appeared another *H. japonica*, an entirely different plant from that of Thunberg. In 1794 Thunberg renames his plant, calling it *Hemerocallis lancifolia*, and maintains Kaempfer's name for a plant, which, years afterward, was called *Funkia Sieboldiana* by Hooker. It is difficult to understand why Thunberg did this, unless it be that he associated this plate with the description of a plant published by the same author in 1712, but without a binomial. In the *Botanical Magazine*, under plate 1433, this same association is made. The flowers are there said to be 3 inches long, which hardly agrees with the plate cited in which the flowers are shown to be about 2 inches long—about the size they are in the plant named *Funkia Sieboldiana* by Hooker. This is of course interesting only as a matter of history, for the oldest specific name of this plant published with a description is *japonica*, and this must be adopted.

- ✓ 3. **Niobe undulata** (Otto & Dietr.). Wavy-margined Day-lily  
*Funkia undulata* Otto & Dietr.

A tall showy plant, with long-petioled broad leaves, and numerous pale lavender flowers in a long raceme. Stems up

to 1.5 m. tall, bearing 3-5 long-petioled leaves which gradually decrease in size, passing into the bracts of the inflorescence; basal leaves numerous; petioles often more than twice as long as the blades, deeply concave, thin-margined, up to 4.5 dm. long; blades usually 1.5-2 dm. long, up to 13 cm. wide, undulate on the margins, broadly ovate, acute at the apex, abruptly narrowed into the margined petiole, with 6-10 nerves on each side, the nerves depressed above, very prominent beneath, the upper surface dull, the lower shining: raceme up to 5 dm. long; flowers numerous, nodding, on recurved pedicels less than 1 cm. long; perianth 4.5-5.5 cm. long, funnel-form, pale lavender, the narrowly ovate acute segments about one half as long as the tube, the stamens and style recurved at the apex, the former exerted.

A native of Japan. There is a plant, much lower than this, with smaller more strongly undulate leaf-blades, which are marked with large masses of white in the center, and a fewer-flowered raceme. I venture to consider this a variegated form of the above plant, under the name *Niobe undulata variegata*. It is perhaps the most commonly cultivated of all the day lilies, and is frequently used as an edging for paths. Its flowers are identical with those of the above in color, form and size, and they appear at about the same time. The stem is also leafy as in that plant. This is sometimes considered a form of *Niobe japonica*, but that flowers considerably later, and has differently shaped leaves with fewer nerves—characters which would seem to exclude this variegated form.

#### 4. *Niobe Sieboldiana* (Lodd.). Siebold's Day-lily

*Funkia Sieboldiana* Hook. *Funkia Sieboldii* Lindl. *Funkia sinensis* Sieb.

A showy perennial forming large masses, with large cordate glaucous leaves, and racemes of pale lilac flowers which protrude little if any above the leaves. Leaves numerous: petioles 2-3 dm. long; blades 2-3 dm. long and 15-20 cm. wide, broadly ovate, cordate at the base, acute at the apex, glaucous on both surfaces, with 12 or 13 curved nerves on each side of the midrib: scape, including the raceme, 3-4 dm. tall, barely equalling or little exceeding the leaves, the lower bracts 4-8 cm. long, finally spreading: inflorescence racemose; flowers 10-15, on pedicels 10-12 mm. long,

finally nodding: perianth pale lilac or white flushed with the same color, 5-6 cm. long, the segments about 1.5 cm. long and 6-8 mm. wide: capsule 3-3.5 cm. long.

Native of Japan. Introduced into cultivation at the Botanical Garden at Leyden, Holland, in 1830.

✓ 5. **Niobe Fortunei** (Baker). Fortune's Day-lily

*Funkia Fortunei* Baker.

A showy perennial, forming masses, with pale green glaucous leaves, which are much overtopped by the racemes of pale purple flowers. Leaves numerous: petioles 5-8 cm. long, shorter than the blades; blades 10-13 cm. long and 7-9 cm. wide, pale green, glaucous, cordate at the base, cuspidate at the apex, with 10-12 nerves on each side of the midrib: scape, including the raceme, 4-5 dm. long, much overtopping the leaves: raceme 1-1.5 dm. long, the bracts lanceolate, the lower ones about 2.5 cm. long: flowers on pedicels 6-8 mm. long: perianth pale purple, about 4 cm. long, the segments lanceolate and about one half as long as the tube.

Native of Japan. Introduced into cultivation in 1876. This and *N. Sieboldiana* are frequently confused.

✓ 6. **Niobe coerulea** (Andr.). Blue Day-lily

*Hemerocallis coerulea* Andr. *Funkia ovata* Spreng. *Funkia coerulea* Sweet.

A showy perennial forming large masses, with large cordate or ovate leaves, and racemes of blue flowers. Leaves numerous, green; blades 10-25 cm. long, 8-13 cm. wide, broadly ovate or sometimes cordate at the base, acute at the apex, the margin often wavy, with 6-9 curved nerves on each side of the midrib; petiole up to 30 cm. long: scape 3-6 dm. tall: inflorescence racemose, extending much above the leaves, the bracts 2 cm. long or less: flowers up to 12, on pedicels 5-10 mm. long, finally nodding: perianth pale or deep blue, 4-5 cm. long, the tube, less than one half the length of the perianth, abruptly spreading into a broad ample limb, the segments of which are about 2 cm. long and 8-10 mm. wide, acute: capsule pendulous, 24-36 mm. long.

Native of Japan, northern China, and eastern Siberia. It was first introduced some time prior to 1797 into England from Japan by Mr. G. Hibbert, of Clapham, in whose garden it flowered. It was first cultivated as a hothouse plant, but was later found to be hardy.

This, as was the case with *Niobe plantaginea*, was first published as a *Hemerocallis* in 1797. By some this is considered to be the original *Hemerocallis japonica* of Thunberg's *Flora Japonica*; but in that the leaves are said to have seven nerves, making this position hardly tenable, as the leaves in this have from 13-19. This is usually known under the name of *Funkia ovata* Spreng. There are forms of this also with variegated leaves. The variety *albo-marginata* has the leaves margined with white.

A word now as to the uses of these plants in horticulture, to which they lend themselves readily and effectively. By selecting the species, flowers may be had continuously from June to the time of frost. The first to flower are *Niobe Sieboldiana* and *N. Fortunei*, closely related species, which are at their prime in June, with white flowers flushed with lavender. As these are waning the deeper lavender flowers of *Niobe undulata* and its variegated variety make their appearance, late in June or early in July, accompanied at almost the same time by the blue bell-shaped flowers of *Niobe coerulea*. Next to appear are the flowers of *Niobe japonica*, and its later-flowering form, the variety *tardiflora*, which carry the flowering period of this interesting genus up to the time of killing frosts. Accompanying these last, and perhaps the most stately of them all, is *Niobe plantaginea*, sometimes known as the plantain lily, from the resemblance of its leaves to those of that plant. This is quite in contrast with the other species, the flowers being much larger, of a different shape, and a pure white, with no trace of coloring. They appear usually early in September, and continue through the month.

Some of the day lilies are desirable foliage plants, in addition to the interest of their flowers. For those who like the rich variegated effect of white and green, perhaps no other plant is more effective than is *Niobe undulata variegata*, planted as an edging to paths or beds. Where a mass of deep green foliage is desired, *Niobe undulata* and *N. coerulea* are desirable; or if a gray green is wished, *Niobe Sieboldiana* or its close relative *N. Fortunei* should not be forgotten. The plants spread rapidly, and delight in a deep rich soil, free from soggy conditions, and are impartial to the bright sun or part shade. Masses of them



planted in the corner of a garden or in recesses in a herbaceous border are very effective. They may be readily propagated by division of the old plants, the new ones soon developing into masses rivaling those from which they were taken. They may also be readily grown from seed, which some of them produce freely. It is desirable, however, that the seed be sown soon after collecting, as it does not keep well.

All of the species in cultivation are perfectly hardy in the latitude of New York, requiring no protection whatever, making them especially desirable for a herbaceous border, where permanency is a great desideratum.

NEW YORK BOTANICAL GARDEN.

## ADDITIONS TO THE FLORA OF THE CAROLINAS—II

BY W. C. COKER

### *Kalmia cuneata* Michx.

This species occurs plentifully on the edge of an open savanna on the south side of Prestwood's Lake, Hartsville, S. C. It appears in scattered slumps along the transition line between the savanna and a typical dense "bay" formation. The soil it stands in is a nearly saturated black humus, and is covered in many places with *Sphagnum*. Associated with the *Kalmia* are *Zenobia pulverulenta*, *Vaccinium australe*, *Azalea viscosa*, *Ilex glabra*, *Ilex coriacea*, *Aronia arbutifolia*, *Myrica cerifera*, *Myrica caroliniana*, *Xolisma foliosiflora*, *Fothergilla carolina*, *Pieris nitida*, etc.

It has been taken previously only from southeastern N. C. The New York Botanical Garden and the Gray Herbarium have it only from Bladen Co., N. C. The Biltmore Herbarium has it also from Cumberland Co. (Hope Mills), and Moore Co. (Aberdeen), N. C.

### *Pyxidantha barbulata* Michx.

Forms dense and extensive mats at several places in the sand hills north of Hartsville, S. C., e. g., on the Camden road about four miles from town. It grows in very sandy soil associated with such plants as arbutus (*Epigaea repens*) and wire grass (*Panicum neuranthum*). It was known heretofore only from